

WHAT IS CLAIMED IS:

1. A spreading code synchronization method in a mobile communication system where, during handover of a mobile station from at least one first base station under communications therewith to a second base station expected to initiate new communications, synchronous detection is carried out to detect a second spreading code assigned to the second base station, out of received signals which are received each by the mobile station and each of which comprises an information data symbol spread by a combination of a first spreading code and a second spreading code, and a mask symbol spread by only the first spreading code, said spreading code synchronization method comprising:

a first step of detecting a received timing of a mask symbol of said second base station in a state in which a received timing of said mask symbol from said first base station is excepted from candidates of received timings for said synchronous detection; and

a second step of carrying out the synchronous detection of the second spreading code assigned to the second base station.

2. A spreading code synchronization method according to claim 1, wherein after said first and second steps are repeated at least either for a predetermined time or a predetermined number of times

and when the received timing of the mask symbol of the second base station is not detected, the detection of the received timing of the mask symbol of said second base station is carried out using received timings of all scrambling codes as candidates without exception.

3. A spreading code synchronization method according to claim 1, wherein in said second step the synchronous detection is carried out using as candidates only second spreading codes which are an arbitrary number of second spreading codes informed of by said first base station and which are assigned to base stations located around the first base station.

4. A spreading code synchronization method according to claim 3, wherein after said first and second steps are repeated at least either for a predetermined time or a predetermined number of times and when the received timing of the mask symbol of the second base station is not detected, the detection of the received timing of the mask symbol of said second base station is carried out using received timings of all scrambling codes as candidates without exception.

5. A spreading code synchronization method according to claim 1, further comprising a third step executed between said first and second steps, said third step being a step of detecting a second spreading code group, using as candidates only groups including

second spreading codes which are an arbitrary number of second spreading codes informed of by said first base station and which are assigned to base stations located around the first base station;

5            wherein in said second step the synchronous detection is carried out using as candidates only said arbitrary number of second spreading codes informed of by the first base station, out of second spreading codes included in the second spreading code group  
10 detected in said third step.

6. A spreading code synchronization method according to claim 5, wherein after said first to third steps are repeated at least either for a predetermined time or a predetermined number of times and when the  
15 received timing of the mask symbol of the second base station is not detected, the detection of the received timing of the mask symbol of said second base station is carried out using received timings of all scrambling codes as candidates without exception.

20            7. A receiver in a mobile communication system where, during handover from at least one first base station under communications to a second base station expected to initiate new communications, synchronous detection is carried out to detect a second spreading  
25 code assigned to the second base station, out of received signals which are received each by the

apparatus and each of which comprises an information data symbol spread by a combination of a first spreading code and a second spreading code, and a mask symbol spread by only the first spreading code, said receiver comprising:

first means for detecting a received timing of a mask symbol of said second base station in a state in which a received timing of said mask symbol from said first base station is excepted from candidates of received timings for the synchronous detection; and

second means for carrying out the synchronous detection of said second spreading code assigned to said second base station.

8. A receiver according to claim 7, wherein after the synchronous detection of said second spreading code by said first and second means is repeated at least either for a predetermined time or a predetermined number of times and when the received timing of the mask symbol of said second base station is not detected, the detection of the received timing of the mask symbol of said second base station is carried out using received timings of all scrambling codes as candidates without exception.

9. A receiver according to claim 7, wherein said second means performs the synchronous detection, using as candidates only second spreading codes which are an

arbitrary number of second spreading codes informed of by said first base station and which are assigned to base stations located around the first base station.

10. A receiver according to claim 9, wherein  
5 after the synchronous detection of said second spreading code by said first and second means is repeated at least either for a predetermined time or a predetermined number of times and when the received timing of the mask symbol of said second base station  
10 is not detected, the detection of the received timing of the mask symbol of said second base station is carried out using received timings of all scrambling codes as candidates without exception.

11. A receiver according to claim 7, further  
15 comprising third means for detecting a second spreading code group, using as candidates only groups including second spreading codes which are an arbitrary number of second spreading codes informed of by said first base station and which are assigned to base stations located  
20 around the first base station;

wherein said second means carries out the synchronous detection, using as candidates only the arbitrary number of second spreading codes informed of by said first base station, out of second spreading  
25 codes included in the second spreading code group detected by said third means.

12. A receiver according to claim 11, wherein  
after the synchronous detection of said second  
spreading code by said first and second means is  
repeated at least either for a predetermined time or a  
predetermined number of times and when the received  
timing of the mask symbol of said second base station  
is not detected, the detection of the received timing  
of the mask symbol of said second base station is  
carried out using received timings of all scrambling  
codes as candidates without exception.

13. A mobile station comprising the receiver  
according to claim 7.